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FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

AUGUST 15, 1991

Richard Meise (left), Fluent Machines Inc., Michael D. Zisman, Soft-Switch Inc. (center), Roger Dev (right), Cabletron Systems Inc.

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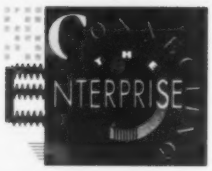
COVER STORY



Connecting The Enterprise 26

BY MARK SCHLACK

In this special feature section, we give voice to some of the philosophies and plans that IS organizations are following as they undergo the process of connecting the enterprise. We interviewed dozens of IS managers charged with developing their organizations' technical directions and asked them how they plan to use six key technologies during the next five years. We also spotlight the innovators in the vendor community and their breakthrough products.

Cover photography by Dave Bradley

Leading the frontier to enterprise computing (l to r): Fluent's Meise, Soft-Switch's Zisman and Cabletron's Dev.

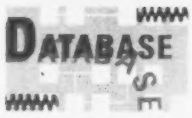
FEATURES

The Message Is Integration 31

BY TOM McCUSKER

With X.400 as a backbone, IS managers are taking advantage of interconnected e-mail to build messaging-capable applications that boost corporate efficiency.

Company To Watch: Soft-Switch Talks To Almost Everybody, page 33

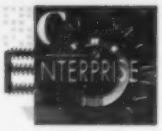


Waiting For The Right Glue 37

BY MIKE RICCIUTI AND J. WILLIAM SEMICH

Distributed databases can tie far-flung records into a single view. But a lack of products and murky standards are keeping many distributed wannabes on the sidelines.

Company To Watch: Empress Distributes Diverse Data, page 42



Overdrive For Network Databases 47

BY JEFF MOAD IS managers are trying out high-end servers as part of their database downsizing plans. The hardware is impressive, but software to use that power is lagging.

Company To Watch: Parallan's Manageable Super Server, page 50

Solving The Multiprotocol Problem 61

BY SUSAN KERR Users are seeking to integrate gateways in system software to ease the burden of managing many stand-alone boxes. And gateway performance is on the rise.

Company To Watch: IBM Opens Gate To Communications, page 64

Starring On Tomorrow's LANs 55

BY BOB FRANCIS AND PAUL PINELLA Voice, image and video on the LAN will unlock a wave of new applications, but successful integration depends on today's design decisions.

Company To Watch: Fluent Brings Multimedia To LANs, page 57

Broadening The Management Umbrella 65

BY NED SNELL Today's crazy quilt is giving way to umbrella systems crafted from selected, standards-based network managers.

Company To Watch: Cabletron: Multivendor Management Made Real, page 67

PRODUCT GUIDE

FEATURE

Forms That Communicate 69

BY ELIZABETH LINDHOLM

Collecting information from remote locations can be an IS manager's biggest headache. XcellNet aims to make the process less painful.

XcellNet's Estes speaks to remote sites.

PRODUCT GUIDE

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Peripherals
PC Printers
Go Mainframe

Systems
Scanning The Globe

PCs & Workstations
The Leading Minitower

Networks UNIX E-Mail

Software
Faster Than A
Speeding 3270

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CONNECTING THE ENTERPRISE

Starring On Tomorrow's LANs

Voice, image and video on the LAN will unlock a wave of new applications, but successful integration depends on today's design decisions.

By Bob Francis and Paul Pinella

Information systems managers mulling over their future connectivity schemes should not restrict their thinking to the problems of typical data transfers. The world is fast becoming a digital place, and typical data in the future will likely include digitized voice, images and video.

These new data types will impose severe burdens on existing networks, particularly in building Ethernet or Token Ring local area networks. Ongoing work in data compression will go part of the way toward squeezing bandwidth-hogging data types into these relatively narrow pipes. But planners should also consider the potential use of nontraditional data when they look at new higher bandwidth local and wide-area networking technologies, like the Fiber Distributed Data Interface (FDDI) and Integrated Services Digital Networks (ISDN).

Until now, IS managers have tended to be only marginally involved with voice and visual data types. In the case of video, the technology traditionally has involved data communications managers acting as guardians of expensive stand-alone videoconferencing systems, satellite hookups and leased lines. That may change, however, as a trickle of products that transmit images, voice and data over ordinary phone lines and LANs begins to appear. Given the greater degree of integration that these systems require, IS managers will certainly be involved in planning and implementation issues.

According to Janet L. Hyland, director of network strategy research at Forrester Research Inc. in Cambridge, Mass., IS involvement is especially important if videoconferencing is to become a more mainstream technology.

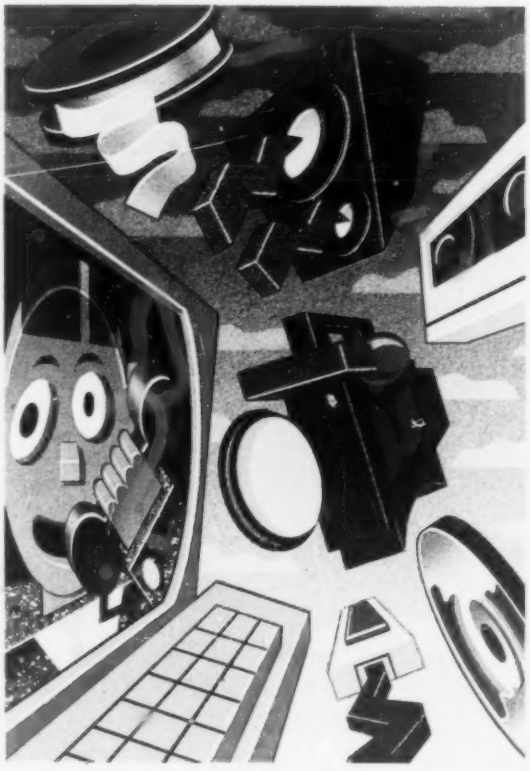


Illustration by David Jonnson

Until now, IS managers have only been marginally involved with voice and visual data types.

"This business is not about videoteleconferencing, but about business communication. We're not talking about two-way television anymore. The interactive exchange of computer-based data is crucial in long-distance conferencing," she says.

The mix of computer-based data and video, as well as sound and image, is certainly an arena where forward-thinking IS managers have a chance to make an impact on their company's operations. Already, a number of pioneers are exploiting the current state of the art.

- At Target Department Stores, a division of Minneapolis-based Dayton-Hudson Inc., store managers hold a videoconference daily to check key buying trends at store sites.
- At the Superconducting Super Collider (SSC) Laboratory in Midlothian, Texas, videoconferencing is already playing a key role in designing—and keeping down costs—of the proposed multibillion dollar Superconducting Super Collider project.
- Vision Ten Inc., a systems integrator based in Torrance, Calif., is using Artisoft Inc.'s $99 Sounding Board as the basis for an X-ray imaging system that it sells to hospitals. Doctors use the sound board, an add-in board that digitizes sound, to voice annotate the X-ray images, which are then centrally stored on a file server and later on optical disc. The system eliminates the paperwork that once hounded doctors and X-ray technicians, and it automates the once-

cumbersome image-filing process.

Promotional videos showing fully integrated voice/image/video/data computer systems have become commonplace at industry shows and conferences. Full integration is a laudable goal, but it will take years to get to. In the meantime, humbler, but worthwhile, systems can be achieved today.

Apple Computer Inc., for example, has included sound chips with its Macintosh computers for years and is now bundling a digital microphone with some of its Macintosh machines. PCs can use third-party sound boards from Tucson, Ariz.-based Artisoft and other suppliers. And independent software vendors are writing applications that allow voice messaging over e-mail and pop-up dictation within word processing, to name a few.

Full integration is a laudable goal, but it will take years to get to.

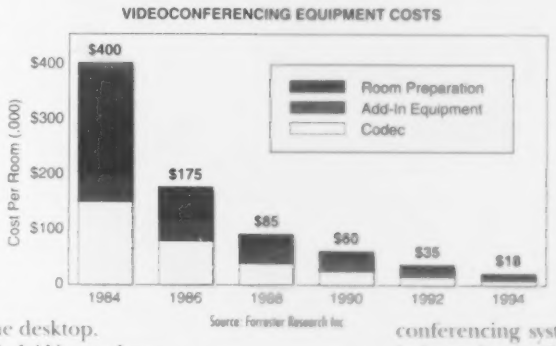
Linked Business Systems, a Minneapolis-based systems integrator is making do today with Ethernet and Token Ring LANs. LBS designs and builds PC-imaging systems based on the Metafile language from Metafile Information Systems Inc. of Rochester, Minn. Senior programmer Steve Watkins notes that stored images of most scanned-in paper documents take up only about 40 kilobytes of space after compression—hardly a challenge for today's LANs.

"But even this can be a problem when somebody wants to look at a 100-page document," he says. Watkins, like many others in his field, wants to see FDDI, with its high bandwidth, become widely implemented at the desktop.

Most experts agree that today's LANs can handle still image and audio applications without choking. The real challenge begins when full-motion video is brought into the picture. Hyland points out that one minute of full-motion video easily consumes 15 megabytes of disk space without compression.

Behind The Surge In Videoconferencing Sales

By 1994, dial-up videoconferencing equipment will cost a fraction of what high-end systems sold for 10 years earlier.



Video Enters The Picture

Because of these limitations, when it comes to video, most organizations are not using their data networks. For those requiring the highest quality connections, high-end equipment systems that broadcast over full T1 or satellite links will do the trick. But the buy-in costs are high and transmission costs can run $400 an hour for a coast-to-coast conference.

That's why much of the action is shifting to lower-cost equipment and transmission lines. Using switched 56Kb per second lines can drive costs down to $30 per hour for transcontinental calls. But, there are some tradeoffs in picture quality, notably a blurring of movements.

Three companies—Compression Labs Inc. of San Jose; PictureTel Corp. of Peabody, Mass.; and VideoTelecom Corp. of Austin, Texas—are the major systems players in affordable videoconferencing, according to industry analysts. Each has its camera eye zoomed in on the dial-up equipment market. The U.S. market, which hit $110 million in revenues for 1990, is estimated to reach $300 million in 1992, according to Tucker Anthony Inc., a Boston research group.

The advent of low-cost scanners is moving imaging from an esoteric technology to a desktop one.

One of the fastest growing videoconference markets is for multipoint sites, where videoconferencing takes place with more than two sites participating. The multipoint market will likely grow as a new industry standard (CCITT's px64) takes effect, allowing various videoconferencing vendors to link their disparate systems together. In late 1989, GPT Video Systems Inc. of London, PictureTel and VideoTelecom demonstrated use of the standard and all major players since have announced upgrade plans that incorporate it.

One of the drawbacks of videoconferencing systems has been the inability of users to include computers in the call. One of the first products to push computer integration is VideoTelecom's Mediamax system, according to Forrester's Hyland. This IBM PC AT-based system allows users to manipulate data files in real time in multiple windows on their video monitors, as well as communicate both visually and aurally. For example, users at several sites may have Lotus 1-2-3 on the screen. They could make changes to the figures on line as if they were in the same room.

VideoTelecom isn't the only company that sees the trend toward greater computer integration. Videoconferencing pioneer Compression Labs has signed a licensing and OEM agreement with DataBeam Corp. of Lexington, Ky., to market that company's Data-Beam CT 500 interactive document-conferencing system, along with its own codecs—industry jargon for coders/ decoders. The CT 500 transmits full-page documents, computer graphics and photographs during a videoconference and allows meeting participants at each site to view, modify and annotate those images.

Toward Desktop Video

When today's dial-up videoconferencing systems include a PC, it's usually as a stand-alone appendage. Tomorrow's more sophisticated systems are likely to deliver full-motion video over LANs. In this way, participants will be able to join conferences without leaving their desks.

Even if LAN-based videoconferencing proves too difficult to accomplish over networks designed to carry more conventional computer traffic, desktop videotelephones that use the telephone network may still be practical. One low-end solution should be available by early 1992 from Compression Labs, according to a company spokesperson. The videophone will use a proprietary algorithm to produce color, full-motion video on a 4-inch screen, all for under $1,500.

Some companies may choose to wait, however, until they can put in higher-bandwidth data nets and bring any kind of data to the desktop. That will most probably mean a combination of ISDN for wide-area connections and FDDI for local and campus networks.

NEW PRODUCTS

A SELECTION OF RECENT INTRODUCTIONS

DATAMATION'S PRODUCT REVIEW

New products can provide the core technology for enterprisewide networks or just make network housekeeping less of a headache. To supplement our connectivity issue of DATAMATION, we've selected a sampler of products that touch all facets of connectivity. They range from new 3270 emulation software that can link desktops to mainframe applications to WAN utilities, to groupware designed specifically for multiserver architectures.

▶ SOFTWARE

3270 Emulation For System/6000

Firesign Software Inc.'s new 3270 emulation software gives RS/6000 users access to IBM mainframes.

3270ix allows remote users to connect to a mainframe with any AIX-supported terminal and printer and provides high-speed file transfer using IND$FILE. It also provides tools that let users design their own communications systems. The software is installed on top of Systems Network Architecture (SNA) services and complies with IBM's Systems Application Architecture (SAA), ensuring software compatibility with future LU6.2 applications or network changes. The $795 product is compatible with NetView and AIX Network Management/6000 and can be used on Token Ring, Ethernet, X.25 and Synchronous Data Link Control (SDLC) networks. FIRESIGN SOFTWARE INC., Ridgefield, Conn.

Circle 550

Pacing Terminal Emulation

Pacer Software Inc. based its new communications software for the Macintosh, PacerTerm, on Apple Computer Inc.'s Macintosh Communications Toolbox. CTB is a modular architecture that provides Mac applications with standardized access to terminal emulation, data connection and file transfer services.

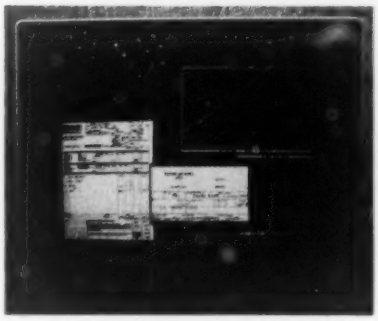
PacerTerm provides TTY, VT102 and VT320 terminal emulation and file transfer using the FTP, Kermit, Xmodem, Zmodem and PacerFT file transfer protocols. Users can open multiple windows and create simultaneous links to several hosts. Individual windows maintain their own parameters, so users can specify distinct terminal, connection and file-transfer types in each window. Using the program's HyperTalk-based scripting features, developers can build front ends to host systems and applications.

PacerTerm can be used over serial links or with a modem, and it supports both the LAT and TCP/IP protocols. The $245 software runs on the Mac Plus, Classic, SE, SE 30 and any Macintosh II with at least 1 megabyte of memory. PACER SOFTWARE INC., La Jolla, Calif.

Circle 551

Getting The Metaview

The Metaview system, an object-driven language for developing document image-processing systems across computing platforms, now includes support for Novell's Btrieve network server. Users can now download IBM AS/400 file descriptions using Metaview routines.



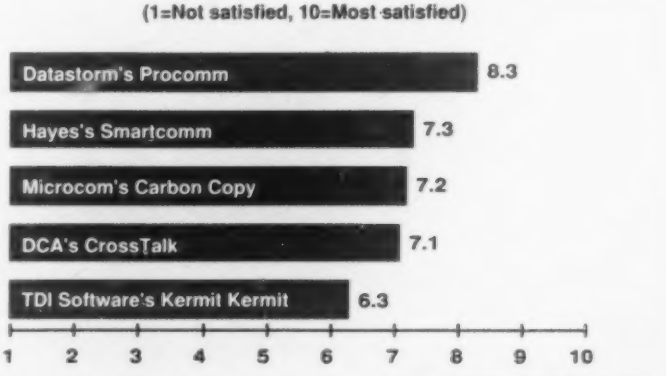
THE METAVIEW SYSTEM for document image processing now supports Novell's Btrieve network server.

The start-up kit, which includes the Metaview Developers Workbench 2.2, the Metaview eXtended Operating System (MXOS), a display module and a midrange access program, is priced at $3,500. Additional modules for each workstation are priced at $1,200. METAFILE INFORMATION SYSTEMS INC., Rochester, Minn.

Circle 552

Corporate Satisfaction Scorecard: Communications

DATAMATION surveyed IS managers who have purchased PC communications software to determine their level of satisfaction. Procomm owners rated their purchases a full point higher than owners of the runner up—Hayes's Smartcomm.



Source: DATAMATION, December 1990

MARKET INSIGHTS

AN ANALYSIS OF ECONOMIC TRENDS

Consumers Won't Lead Recovery

BY MADELINE FRANCHI
Cahners Economics

In the face of rising unemployment and stagnating income growth, consumers slammed on the brakes earlier this year. On a seasonally adjusted basis, retail sales fell slightly from March to April 1991, nudging them a mere 1.7% higher than their level in April 1990. Take out the effects of inflation, and retail trade activity dropped a hefty 5% below last year's level.

For an explanation, look at the Conference Board's Consumer Confidence Index. Following the end of the Gulf War, consumer confidence rebounded from a deep drop. But the rebound was followed by another two-month decline. That fall in confidence also showed up in an uninterrupted four-month decline in installment credit.

As a result, for all of 1991, Cahners Economics expects only a 0.6% rise in retail sales. Factoring out inflation, that translates into a 3% decline in real terms.

Evidence of consumer cutbacks has started showing up in data on business failures in the retail trades. According to figures compiled by New York City-based Dun & Bradstreet Corp., 60,432 U.S. businesses closed up shop for good in 1990—the first increase in failures in three years. Retail trade concerns accounted for 21.2% of the failed companies. Between 1989 and 1990, the number of retail failures increased by 15.3%.

The upward trend continued into the first four months of 1991, too. During that time there were 35% more retail trade failures than there were in the first four months of 1990.

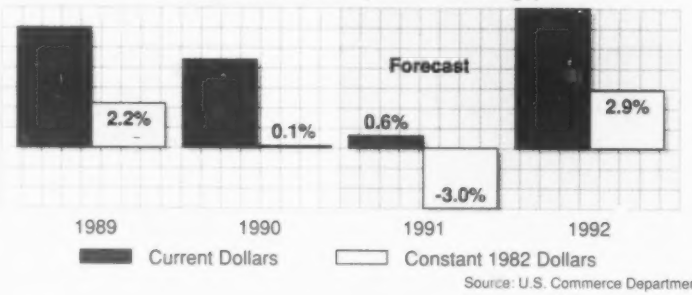
No surprise, then, that layoffs are also increasing in the retail sector of the economy these days. In every month since November 1990, the annualized level of employment has fallen. In April 1991, employment was 1.9% below that of April 1990. ▭

For more information on Cahners Economics's forecasting services, including seminars, newsletters and database diskettes, call Dan Buchan at (617)-630-2105, fax him at (617)-630-2100 or write to him at Cahners Economics, 275 Washington St., Newton, MA 02158.

So Much To Buy, So Little Money

Consumers squeezed every dollar this year...

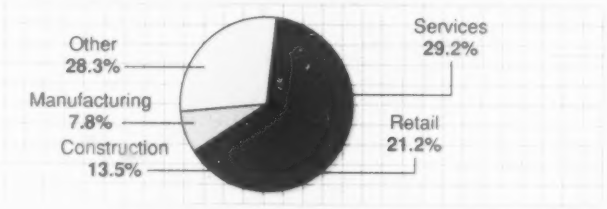
TOTAL RETAIL SALES (Annual % Change)



Source: U.S. Commerce Department

And businesses felt the pain.

U.S. BUSINESS FAILURES, 1990 (% Share Of Total)



Total: 60,432 failures

Source: Dun & Bradstreet Corp.

The Economy At A Glance

U.S. Economy: Macroeconomic And Industrial Indicators

	Actual		Forecast (Annual % Growth)		
	Q4/90	Q1/91	1991	1992	1993
Gross National Product	-1.6	-2.6	0.1	3.1	2.4
Business Investment In Equipment	6.3	-18.2	-1.0	4.6	4.9
Government Spending	4.7	-1.5	0.5	0.4	0.1
Consumer Spending	-3.4	-1.3	0.1	3.0	2.2
Exports	11.0	-2.6	2.8	5.1	3.1
Imports	-11.8	-11.3	0.5	4.3	1.8

All calculations are % change in 1982 dollars; quarterly figures are seasonally adjusted annual rates.

	April 1991	March 1991	% Change 4/91-3/91	April 1990	% Change 1991-1990
Manufacturing Production (1)					
Process Industries Total	97.2	95.0	2.3	108.0	-10.0
Chemicals	108.6	108.2	0.4	110.3	-1.5
Petroleum	106.5	108.6	-1.9	106.8	-0.3
OEM Total	108.4	107.6	0.8	112.5	-3.6
Computers & Peripherals	154.5	155.2	-0.5	149.3	3.5
Communication Equipment	111.9	109.9	1.8	107.6	4.0
Transportation Equipment	97.2	95.0	2.3	105.1	-7.5
Services Employment (2)					
Finance, Insurance, Real Estate	6.689	6.685	0.1	6.703	-0.2
Health Care	8.133	8.105	0.3	7.738	5.1
Computer & Data Processing	0.822	0.817	0.6	0.775	6.1
Transportation/Utilities	5.781	5.764	0.3	5.763	0.3
Retail Trade	19.093	18.990	0.5	19.457	-1.9
Wholesale Trade	6.062	6.063	0.0	6.187	-2.0
Government	18.761	18.774	-0.1	18.636	0.7

(1) Index 1978=100, seasonally adjusted
(2) Millions of persons, not seasonally adjusted

Source: Commerce Dept. and Cahners Economics

MARKET INSIGHTS

A SURVEY OF TECHNOLOGY TRENDS

MIS Says No To Network Outsourcing

BY WARREN CHILDS
Business Research Group

Although mainframe- and minicomputer-based host systems remain the dominant computing environments in large commercial MIS shops, PC local area networks are becoming increasingly important. LANs can boost processing power at a significantly lower cost and are thus taking on a central role in the development and implementation of strategic applications. Companies with geographically dispersed computing resources or newly implemented strategic applications are depending more and more on interconnected LANs to share data and processing.

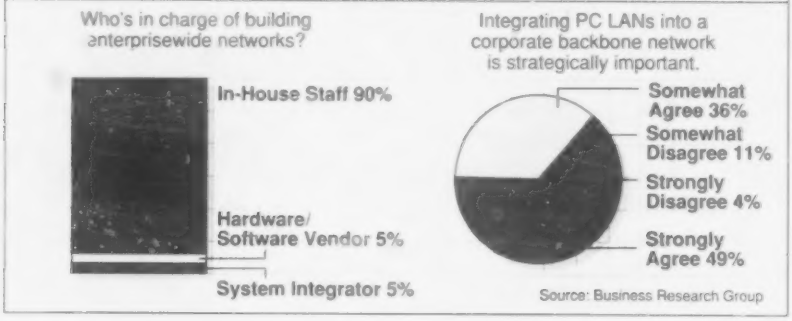
A recent survey conducted by the Business Research Group of more than 250 MIS managers at *Fortune* 1,000-sized companies reveals just how important LAN connectivity issues have become. Nearly half of those interviewed strongly agree that integrating PC LANs over a corporate backbone network is of strategic importance to their company. An additional 36% somewhat agree with that statement.

Despite the complexities, 90% of surveyed MIS managers are counting on their in-house staff to design and implement enterprisewide networks of interconnected LANs. Only 10% cite outsourcing to third parties such as hardware and software vendors, systems integrators and network service providers as the preferred route to interconnecting PC LANs.

BRG has identified a number of reasons MIS managers currently prefer not to go the outsourcing route for networking. In order of importance, MIS managers say they think outside service providers slow down project implementation, lack the business knowledge necessary to implement strategic applications, are too costly and may not have the necessary multivendor integration expertise. ▭

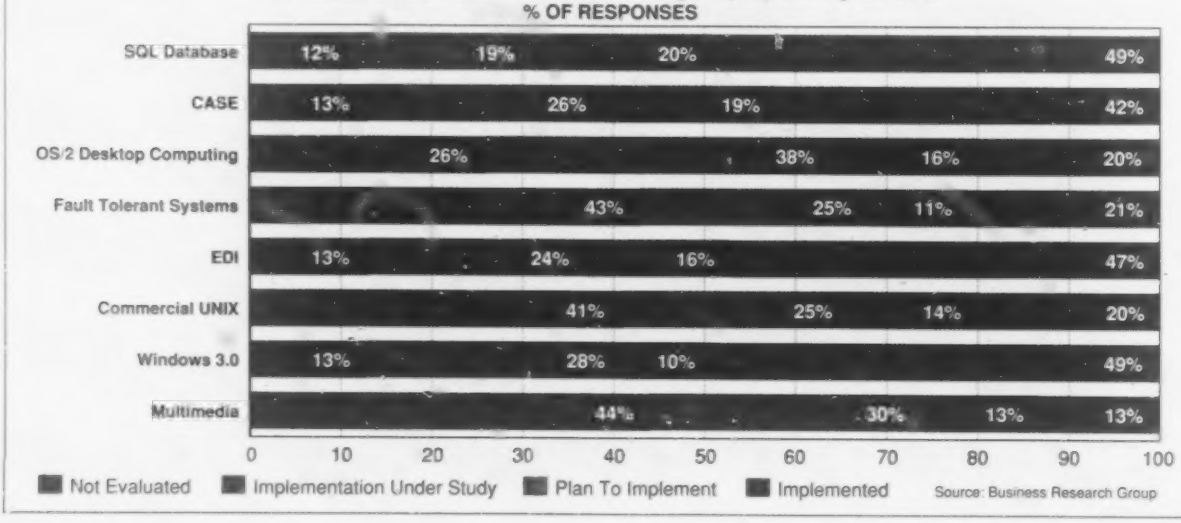
For more information, call Nancy Finn at (617)-964-6204, fax her at (617)-558-4402 or write to her at the Business Research Group, 275 Washington Street, Newton, MA 02158.

Who's King Of All The LANs? MIS!


Who's in charge of building enterprisewide networks?
In-House Staff 90%
Hardware/ Software Vendor 5%
System Integrator 5%
Integrating PC LANs into a corporate backbone network is strategically important.
Somewhat Agree 36%
Somewhat Disagree 11%
Strongly Disagree 4%
Strongly Agree 49%
Source: Business Research Group

DATAMATION's Technology Implementation Index: Systems And Software

DATAMATION each month surveys a select group of its readers--the DATAMATION Technology Panel--to investigate the implementation of new technologies by key user organizations.


% OF RESPONSES
SQL Database 12% 19% 20% 49%
CASE 13% 26% 19% 42%
OS/2 Desktop Computing 26% 38% 16% 20%
Fault Tolerant Systems 43% 25% 11% 21%
EDI 13% 24% 16% 47%
Commercial UNIX 41% 25% 14% 20%
Windows 3.0 13% 28% 10% 49%
Multimedia 44% 30% 13% 13%
0 10 20 30 40 50 60 70 80 90 100
Not Evaluated
Implementation Under Study
Plan To Implement
Implemented
Source: Business Research Group

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